

REMARKS

Claims 6-10, 14, 15, 24 and 29 are objected to as being improper because a multiple dependent claim cannot depend from another multiple dependent claim. Applicants amend claims 6, 8, 14, 24, and 29, as indicated herein, and believe that these amendments obviate the claim objections.

Claims 1-29 are all the claims pending in the present application. Claims 1, 11, 16 and 19 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Tuttle et al. (U.S. Patent No. 6,592,807). Claims 1, 11-13, 16, 20, 22 and 25 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kimura et al. (U.S. Patent No. 3,804,566). Claims 1, 16 and 19 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by International Publication WO/88/01927, hereinafter referred to as D'Aleo. Claims 1, 2, 11 and 16-18 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by German Patent Document 1,800,081, hereinafter referred to as German '081. Claims 2-5, 11-13, and 17-19 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over German '081 in view of Caretta et al. (U.S. Patent Appln. Pub. No. 2001/0048182). Claims 20-23 and 25-28 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over German '081 in view of Caretta and further in view of German et al. (U.S. Patent No. 6,399,018), hereinafter referred to as German '018, Rode (U.S. Patent No. 3,623,630), Umehara et al. (U.S. Patent No. 3,706,550) and Severinsson (U.S. Patent No. 4,314,399).

§102(e) Rejections (Tuttle) - Claims 1, 11, 16 and 19

Claims 1, 11, 16 and 19 are rejected over Tuttle based on the reasons set forth on page 2 of the Office Action.

With respect to independent claim 1, Applicants submit that Tuttle does not disclose or suggest each and every feature of amended claim 1, including at least, "making at least part of a

mold element for a tire tread portion out of a sintered member and a mold element for the mating portions of the mold out of a member having fewer pores than the sintered member or no pores,” as recited in amended claim 1. That is, nowhere does Fig. 5, or col. 3, lines 17-35 of Tuttle disclose the making of a mold element for the mating portion of the mold out of a member having fewer pores than the sintered member or no pores. At least because this feature is not satisfied by Tuttle, Applicants submit that Tuttle does not anticipate claim 1.

Yet further, Applicants submit that Tuttle does not satisfy the feature, “making the tire vulcanizing mold out of a plurality of mold elements which have fixed density in the thickness direction of the mold and differ from each other in density to provide a density distribution to the mold,” as recited in amended claim 1. Applicants submit that claims 16 and 19 are patentable at least based on similar reasons.

Applicants submit that dependent claim 11 is patentable at least by virtue of its dependency from independent claim 1. Further, with respect to claim 11, the Examiner does not even address the limitation, “wherein a mold element arranged around the projection of at least a tire crown portion is manufactured by the powder sintering method,” as recited in claim 11.

§102(b) Rejections (D'Aleo) - Claims 1, 16 and 19

Applicants submit that D'Aleo does not satisfy the feature, “making the tire vulcanizing mold out of a plurality of mold elements which have fixed density in the thickness direction of the mold and differ from each other in density to provide a density distribution to the mold,” as recited in amended claim 1. Applicants submit that claims 16 and 19 are patentable at least based on similar reasons.

§102(b) Rejections (Kimura) - Claims 1, 11-13, 16, 20, 22, and 25

Claims 1, 11-13, 16, 20, 22 and 25 are rejected over Kimura based on the reasons set forth on page 3 of the Office Action.

With respect to independent claim 1, Applicants submit that Kimura does not disclose or suggest at least, “making at least part of a mold element for a tire tread portion out of a sintered

member and a mold element for the mating portions of the mold out of a member having fewer pores than the sintered member or no pores,” as recited in claim 1. According to Applicants’ review of Kimura, there is no teaching or suggestion of making a mold element for the mating portions of the mold out of a member having fewer porous than the sintered member or no pores. The Examiner does not even address this particular feature. Accordingly, Applicants submit that Kimura does not anticipate claim 1.

Applicants submit that claims 11-13 are patentable at least by virtue of their indirect or direct dependency from independent claim 1. Further, with respect to claims 11-13, the Examiner does not even address the particular features of these claims with respect to Kimura.

With respect to independent claim 16, Applicants submit that this claim is patentable at least based on reasons similar to those set forth above with respect to claim 1.

With respect to independent claims 20 and 25, Applicants submit that Kimura does not disclose or suggest at least, “infiltrating a metal or alloy into the pores of the laminated sintered body of the mold and controlling a density of the laminated sintered body by adjusting the infiltration of the metal or alloy,” and “wherein a metal or alloy is infiltrated into the pores of the laminated sintered body of the mold and the infiltrated metal or alloy has a density distribution,” (emphasis added) as recited in amended claims 20 and 25, respectively. Applicants submit that dependent claim 22 is patentable at least by virtue of its dependency from independent claim 20.

§102(b) Rejections (German ‘081) - Claims 1, 2, 11 and 16-18

The Examiner cites Figs. 1, 5 and 6 of German ‘081 as allegedly satisfying the claims 1, 2, 11 and 16-18. Applicants traverse these rejections at least based on the following reasons.

Applicants submit that nowhere does German ‘081 disclose or suggest at least, “making at least part of a mold element for a tire tread portion out of a sintered member and a mold element for the mating portions of the mold out of a member having fewer pores than the

sintered member or no pores,” as recited in independent claim 1. The Examiner does not address this particular feature either.

Yet further, Applicants submit that German ‘081 does not disclose or suggest at least, “making the tire vulcanizing mold out of a plurality of mold elements which have fixed density in the thickness direction of the mold and differ from each other in density to provide a density distribution to the mold,” as recited in amended claim 1.

Applicants submit that dependent claims 2 and 11 are patentable at least by virtue of their dependency from independent claim 1. Further, the Examiner does not even address the specific features set forth in dependent claims 2 and 11.

Applicants submit that claim 16 is patentable at least based on reasons similar to those set forth above with respect to claim 1 over Yoshikawa. Applicants submit that dependent claims 17 and 18 are patentable at least by virtue of their dependency from independent claim 16.

§103(a) Rejections (German ‘081/Caretta) - Claims 2-5, 11-13 and 17-19

Claims 2-5, 11-13 and 17-19 are rejected over German ‘081 and Caretta based on the reasons set forth on pages 4-5 of the present Office Action.

First, Applicants submit that dependent claims 2-5, 11-13 and 17-19 are patentable at least by virtue of their indirect or direct dependencies from independent claims 1 and 16. Caretta does not make up for the deficiencies of German ‘081.

The Examiner alleges that German ‘081 satisfies the above-quoted claims except for the sintering being performed by application of a laser beam to provide a layered laminated sintered mode portion.

Except for this simple assertion by the Examiner, the Examiner does not address or show where either of the applied references discloses or suggests the specific claimed features of claims 2-5, 11-13, and 17-19. Thus, the Examiner has not established a prima facie case that the

present invention, as recited in claims 2-5, 11-13, and 17-19, is obvious. Yet further, the

Examiner alleges:

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify German '081 by performing the sintering with the application of a laser beam to provide a layered laminated sintered mold portion, as suggested by Caretta et al, in order to facilitate automation of the sintering operation, in order to improve dimensional accuracy of the mold portion, and in order to increase productivity in the mold manufacturing process. It would have been further obvious to a skilled artisan to modify German '081 by forming the density distribution by either varying the powder size or controlling the laser beam outlet exposure time or intensity, since a skilled artisan would have readily recognized the utility of such to impart a desired density to the sintered body. It would have been further obvious to a skilled artisan to assemble the sintered mold portion with the separately manufactured mold portion by embedding at the time of casting of the separately manufactured mold portion, in order to easily and securely unite the sintered body to the remaining mold body. Moreover, it would have been obvious and well within the level of ordinary skill in the art to provide the tread mold as a piece type tire mold, since such were well known equivalent means for forming the tread in the vulcanized tire.

In response, Applicants submit that the Examiner is obviously utilizing impermissible hindsight reasoning as nowhere do the applied references disclose the motivation for combining the references mentioned by the Examiner above. Furthermore, even if one of ordinary skill in the art would have been motivated to combine the above-discussed references, there is no teaching or suggestion in the applied references of the specific features set forth in claims 2-5, 11-13, and 17-19.

§103(a) Rejections (German '081/Caretta/German '018/Rode/Umehara/Severinsson) - Claims 20-23 and 25-28

The Examiner cites numerous references as allegedly satisfying the present invention, as recited in claims 20-23 and 25-28, however, the applied references do not show the specific features set forth in claims 20-23 and 25-28.

Specifically, with respect to claim 20, the applied references do not disclose or suggest at least the specific operations of: "manufacturing at least part or all of a mold by a powder

sintering method in which sinterable powders are heated and sintered to laminate layers,” and “infiltrating a metal or alloy into the pores of the laminated sintered body of the mold and controlling a density of the laminated sintered body by adjusting the infiltration of the metal or alloy,” as recited in claim 20.

With respect to independent claim 25, the applied references do not disclose or suggest at least, “forming part or all of the mold by a powder sintering method in which sinterable powders are heated and sintered to laminate layers, wherein a metal or alloy is infiltrated into the pores of the laminated sintered body of the mold and the infiltrated metal or alloy has a density distribution,” as recited in claim 25.

With respect to claims 27 and 28, the Examiner alleges that the lamellae 16 of Caretta satisfies the blade that is claimed in claims 27 and 28. However, the lamellae 16 of Caretta does not satisfy, “a blade planting groove portion for forming the side of a tire of the mold is composed of the laminated sintered body,” as recited in claim 27 and similarly recited in claim 28. Therefore, Applicants submit that claims 27 and 28 are patentably distinguishable over the applied references, either alone or in combination.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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